

# Wilshire Consulting

## *2009 Wilshire Report on State Retirement Systems: Funding Levels and Asset Allocation*

*Julia K. Bonafede, CFA, Senior Managing Director  
Steven J. Foresti, Managing Director  
Alexander Browning, Senior Associate*

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1299 OCEAN AVENUE, SUITE 700  
SANTA MONICA, CA 90401  
T.310.451.3051 F.310.458.6936

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***Wilshire Associates Incorporated***  
***1299 Ocean Avenue, Suite 700***  
***Santa Monica, CA 90401***  
***Phone: 310.451.3051***  
***Fax: 310.458.6936***  
***Email: [contactconsulting@wilshire.com](mailto:contactconsulting@wilshire.com)***



## **Summary of Findings**

- The following study includes 125 state retirement systems. Of these 125 retirement systems, 59 systems reported actuarial values on or after June 30, 2008 and 66 systems reported before June 30, 2008. Eight of these 66 late-reporting systems last reported before June 30, 2007.
- Wilshire Consulting estimates that the ratio of pension assets-to-liabilities, or *funding ratio*, for all 125 state pension plans was 84% in 2008, down sharply from an estimated 96% in 2007. (Exhibit 1)
- For the 59 state retirement systems that reported actuarial data for 2008, pension assets and liabilities were \$803.6 billion and \$1040.6 billion, respectively. The funding ratio for these 59 state pension plans was 77% in 2008, down from 88% for the same plans in 2007. (Exhibit 2)
- For the 59 state retirement systems that reported actuarial data for 2008, pension assets declined by -7.6%, or -\$65.9 billion, from \$869.4 billion in 2007 to \$803.6 billion in 2008 while liabilities grew 5.9%, or \$57.6 billion, from \$982.9 billion to \$1040.6 billion. The decline in asset values compared with the continued steady growth in liabilities for the 59 state pension plans led to a significant increase in the aggregate shortfall, as the -\$113.5 billion shortfall in 2007 widened to a -\$237.0 billion shortfall in 2008. (Exhibit 2)
- For the 117 state retirement systems that reported actuarial data for 2007, pension assets and liabilities were \$2342.6 billion and \$2497.9 billion, respectively. The funding ratio for all 117 state pension plans was 94% in 2007. (Exhibit 1)
- Of the 59 state retirement systems that reported actuarial data for 2008, 93% have market value of assets less than pension liabilities, or are *underfunded*. The average underfunded plan has a ratio of assets-to-liabilities equal to 73%.
- Of the 117 state retirement systems that reported actuarial data for 2007, 66% are *underfunded*. The average underfunded plan has a ratio of assets-to-liabilities equal to 82%.
- State pension portfolios have, on average, a 68.4% allocation to equities – including real estate and private equity – and a 31.6% allocation to fixed income. The 68.4% equity allocation is notably higher than the 63.4% equity allocation in 2003. (Exhibit 13)
- Asset allocation varies widely by retirement system. Thirty-one of 125 retirement systems have allocations to equity that equal or exceed 75%, and one system has an equity allocation below 50%. The 25<sup>th</sup> and 75<sup>th</sup> percentile range for equity allocation is 63.0% to 74.6%.
- Wilshire forecasts a long-term median plan return equal to 7.5% per annum, which is 0.5 percentage points below the median actuarial interest rate assumption of 8.0%.



## **Financial Overview**

This is Wilshire Consulting’s fourteenth report on the financial condition of state-sponsored defined benefit retirement systems and is based upon data gathered from the most recent financial and actuarial reports provided by 125 retirement systems sponsored by the 50 states and the District of Columbia. Appendix A lists the 125 retirement systems included in this year’s study.

### *The Data*

Financial data on public retirement systems lack the timeliness and uniform disclosure governing pension plans sponsored by publicly traded companies, making it difficult to conclude a study with data that is both current and consistent across systems. For this reason, our study methodology involves collecting data during the first one and a half months of each calendar year with the objective of acquiring as many reports as possible with a June 30 valuation date from the previous year. Even for systems with the desire to report in a timely manner, it often takes six months to a year for actuaries to determine liability values. Fifty-nine systems reported actuarial values on or after June 30, 2008 and 66 systems reported before June 30, 2008. Eight of these 66 late-reporting systems last reported before June 30, 2007.

### *Assets versus Liabilities*

Exhibit 1 shows the market value of assets, actuarial value of assets, and pension liability values for all state retirement systems for which Wilshire has data. With the exception of the two rows identifying Wilshire’s estimated funded ratios, the data presented in each column of Exhibit 1 is limited to only those systems that reported on or after June of that year. For example, all 125 retirement systems reported actuarial values for 2006 while only 59 systems reported actuarial values for 2008. Note that Exhibit 1 includes both market value and actuarial value of assets. Unless otherwise noted, “assets” will refer to market value of assets for the remainder of this paper.

**Exhibit 1**  
**Financial Overview of State Retirement Systems<sup>1</sup> (\$ billions)**

	2001	2002	2003	2004	2005	2006	2007	2008
<b>Total Pension Assets:</b>								
Market Value	\$1,851.4	\$1,684.9	\$1,785.6	\$2,001.9	\$2,170.6	\$2,366.5	\$2,342.6	\$803.6
Actuarial Value	\$1,940.2	\$1,926.1	\$1,969.2	\$2,036.0	\$2,124.8	\$2,262.9	\$2,135.3	\$838.3
<b>Total Pension Liabilities:</b>	\$1,949.3	\$2,068.1	\$2,204.4	\$2,326.0	\$2,471.6	\$2,630.0	\$2,497.9	\$1,040.6
<b>Difference:</b>								
Market Value	-\$97.9	-\$383.2	-\$418.9	-\$324.1	-\$301.0	-\$263.5	-\$155.3	-\$237.0
Actuarial Value	-\$9.1	-\$142.0	-\$235.2	-\$290.0	-\$346.8	-\$367.1	-\$362.7	-\$202.3
<b>Market Value of Assets as a % of Liabilities:</b>								
All Plans (estimate)*	95%	81%	81%	86%	88%	90%	<b>96%</b>	<b>84%</b>
Reported Plans (actual)	95%	81%	81%	86%	88%	90%	94%	77%
<b>Actuarial Value of Assets as a % of Liabilities:</b>								
All Plans (estimate)*	100%	93%	89%	88%	86%	86%	<b>87%</b>	<b>86%</b>
Reported Plans (actual)	100%	93%	89%	88%	86%	86%	85%	81%
<b>Total No. of Retirement Systems:</b>	125	125	125	125	125	125	117	59

\*The estimation process is explained later in the report (exhibit 3 and its preceding text).

<sup>1</sup> As disclosed in annual reports (most annual reports use a June 30 or December 31 fiscal year). Liabilities are the reported actuarial accrued liabilities and assets are the current market and actuarial values as of the same valuation date as liabilities.



The aggregate pension asset and liability values in Exhibit 1 are not directly comparable across columns because of the different number of retirement systems included for each year. As such, in the case of recent years that do not yet include data for the complete set of plans, we include an estimate of the funding ratios across all 125 plans. By combining these estimates with the historical funding ratios for the complete set of plans we can better evaluate the financial health for these 125 retirement systems over the last eight years. Market value funding ratios fell dramatically between 2001 and 2003, from 95% to 81% but rebounded steadily to 96% by 2007. This year marks a change in that trend as market value funding ratios declined 12% to end the 2008 fiscal year at 84%. Actuarial value funding ratios declined between the years 2001 and 2005, falling from 100% to 86% and have held relatively constant since.

Exhibit 2 shows asset and liability values for the 59 retirement systems which reported actuarial values for 2008 and compares them with the same totals from the previous seven years.

**Exhibit 2**  
**Financial Overview of 59 State Retirement Systems (\$ billions)**

	2001	2002	2003	2004	2005	2006	2007	2008	Annualized Growth %	
									2001-2008	2007-2008
<b>Total Pension Assets:</b>										
- Market Value	\$616.6	\$564.2	\$575.4	\$654.0	\$706.2	\$760.3	\$869.4	\$803.6	3.9%	-7.6%
- Actuarial Value	\$640.5	\$643.8	\$651.1	\$680.6	\$703.2	\$743.5	\$808.7	\$838.3	3.9%	3.7%
<b>Total Pension Liabilities:</b>	\$667.0	\$716.6	\$759.9	\$805.4	\$858.5	\$917.6	\$982.9	\$1,040.6	6.6%	5.9%
<b>Difference:</b>										
- Market Value	-\$50.4	-\$152.4	-\$184.6	-\$151.4	-\$152.3	-\$157.2	-\$113.5	-\$237.0		
- Actuarial Value	-\$26.4	-\$72.8	-\$108.8	-\$124.8	-\$155.3	-\$174.0	-\$174.2	-\$202.3		
<b>Assets as a % of Liabilities:</b>										
- Market Value	92%	79%	76%	81%	82%	83%	88%	77%		
- Actuarial Value	96%	90%	86%	85%	82%	81%	82%	81%		
<b>Underfunded Plans as % of All Plans:</b>										
- Market Value	68%	93%	98%	92%	92%	90%	78%	93%		
- Actuarial Value	61%	73%	80%	83%	90%	93%	90%	92%		
<b>Total No. of Systems:</b>	59	59	59	59	59	59	59	59		

In 2007, pension liabilities for these 59 plans exceeded assets by \$113.5 billion and the funding ratio, or ratio of assets-to-liabilities, one measure of pension fund health, stood at 88%. One year later, assets have fallen to \$803.6 billion, or -7.6%, while liabilities have grown to \$1,040.6 billion, or 5.9%. The result has been a significant increase in the shortfall between assets and liabilities from a negative \$113.5 billion to a negative \$237.0 billion, a \$123.5 billion decline, and a decline in the funding ratio for these 59 plans from 88% to 77%.

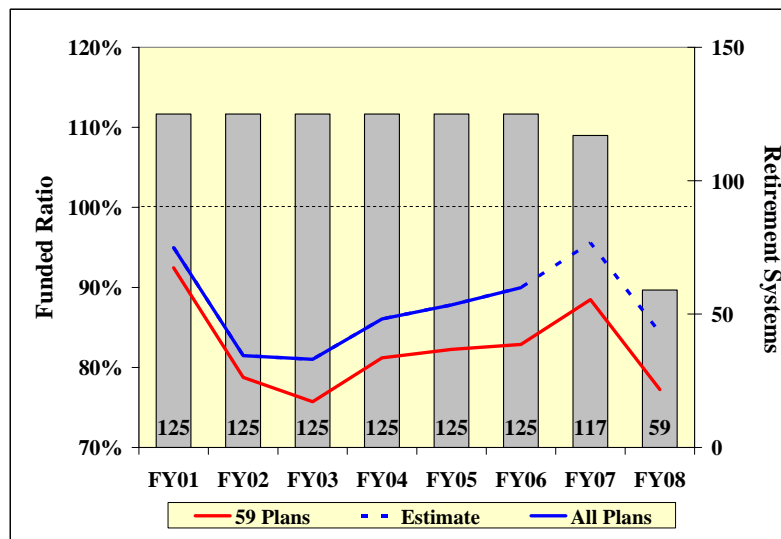
In 2003, after the equity market declines of 2000 through 2002, pension liabilities for these 59 plans exceeded assets by \$184.6 billion and the funding ratio stood at 76%. During the next four years, assets grew at an average rate of 10.9% while liabilities grew by 6.6%. This difference in growth rates is reflected in the increasing funding ratio of the market value of assets to liabilities through the year 2007. In 2008 however, the shortfall between assets and liabilities widened dramatically from a negative \$113.5 billion to a negative \$237.0 billion, and a fall in the funding ratio for these 59 plans from 88% to 77%.



Aggregate statistics such as these can mask the underlying fiscal strength or weakness of individual plans because assets in well-funded retirement systems are not transferable to underfunded systems. Exhibit 2 shows that 93% of these 59 state pension systems, or 55 pension systems, have assets less than liabilities. If we look only at these 55 underfunded systems, their combined assets as a percent of liabilities equals 73% and their combined unfunded liabilities total \$240.5 billion. Conversely, if we look only at the 4 state pension systems that have assets greater than liabilities, their combined assets as a percent of liabilities equals 103% and their combined overfunded liabilities total \$3.5 billion.

It is important to note, as with any sample, there exists some level of statistical error. As is evident from comparing Exhibits 1 & 2, the sample of 59 retirement systems that reported 2008 data had a relatively lower funded status than seen historically in the complete set of 125 state plans. Exhibit 3 provides a graphical comparison between the historical data of all plans versus the subset of 59 plans with more recently reported data. The dotted line represents Wilshire’s estimated funding ratio for the complete set of 125 plans, which is derived from the historical relationship between the 59 plan sample and the complete set of 125 plans. Using this approach one can reasonably expect a funding ratio of approximately 84% once all plans have reported 2008 actuarial data. This estimation approach and graphical representation of estimated data will be used throughout the remainder of this report.

**Exhibit 3**  
**Funding Ratio Comparison of 59 Plan Sample vs. Complete Set of 125 Plans**



*Funding Ratios*

Expanding on Exhibit 3, Exhibit 4 shows the aggregate, average, median, 25<sup>th</sup>, and 75<sup>th</sup> percentile market value funding ratios for the 125 state pension systems by fiscal year. Historically, the market value funding ratios for our sample generally fell between 2001 and 2002. After stabilizing in 2003, the funding ratios experienced a fairly steady improvement through 2007. In 2008 however, funding ratios broke trend and rapidly declined.



**Exhibit 4**  
**Market Value Funding Ratios by Fiscal Year for 125 Plans**

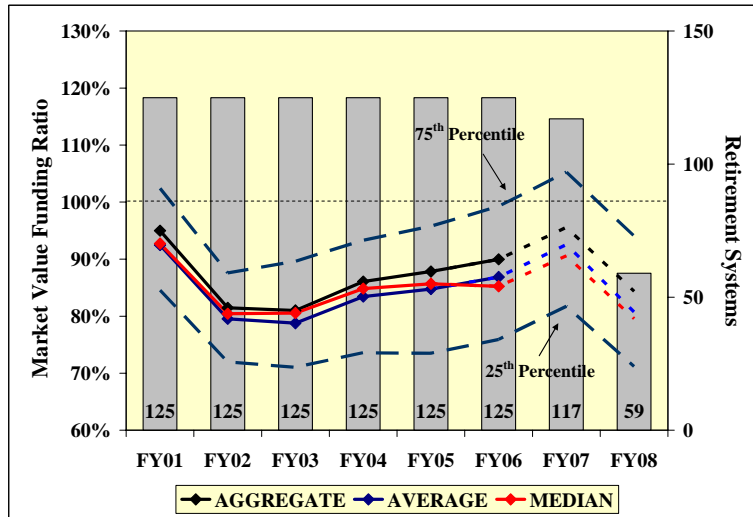


Exhibit 5 shows the same information as Exhibit 4, except uses actuarial value of assets to determine funding ratios. Similar to Exhibit 4, though at a slower rate, funding ratios generally fell between 2001 and 2002. However, unlike Exhibit 4, funding ratios based on actuarial value of assets continued to fall through 2006, briefly stabilizing in 2007 and then declining slightly during the past year. In contrast to market value funding ratios, actuarial value funding ratios tend to move slower as a result of the smoothing of actuarial values.

**Exhibit 5**  
**Actuarial Value Funding Ratios by Fiscal Year for 125 Plans**

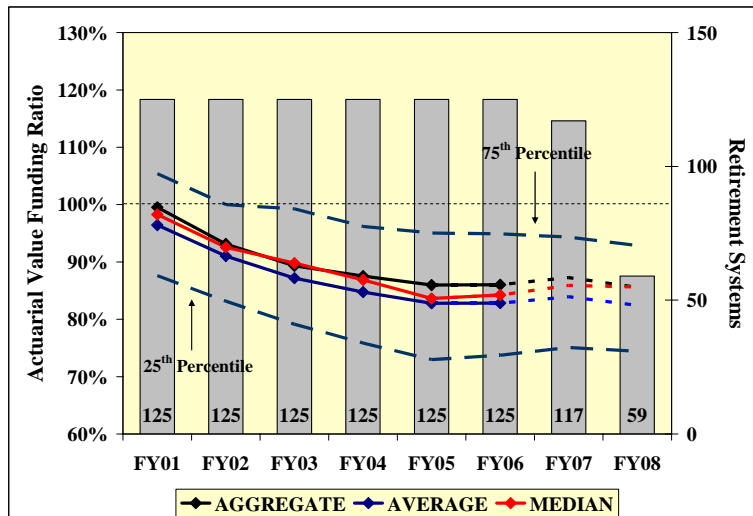
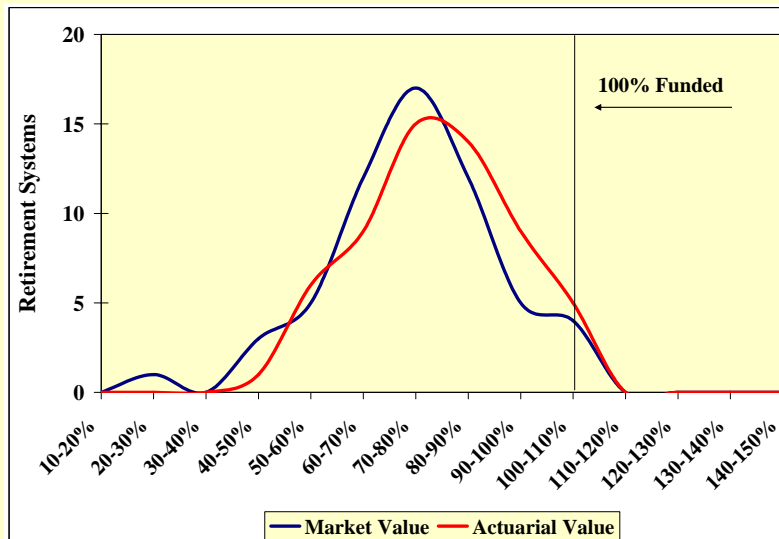




Exhibit 6 gives a more detailed picture of the fiscal condition for the 59 state retirement systems that reported actuarial values for 2008.

**Exhibit 6**  
**Distribution of 59 State Pension Systems by FY08 Funding Ratio**



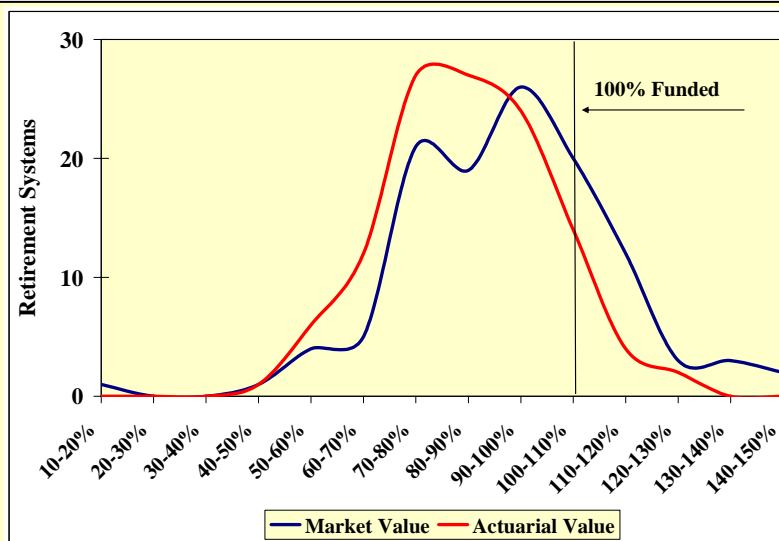
Distribution	Bucket Count				Distribution	Cumulative Count			
	Market Value		Actuarial Value			Market Value		Actuarial Value	
	Count	% of Total	Count	% of Total		Count	% of Total	Count	% of Total
0-50%	4	7%	1	2%	0-50%	4	7%	1	2%
50-60%	5	8%	6	10%	0-60%	9	15%	7	12%
60-70%	12	20%	9	15%	0-70%	21	36%	16	27%
70-80%	17	29%	15	25%	0-80%	38	64%	31	53%
80-90%	12	20%	14	24%	0-90%	50	85%	45	76%
90-100%	5	8%	9	15%	0-100%	55	93%	54	92%
100-110%	4	7%	5	8%	0-110%	59	100%	59	100%
110-120%	0	0%	0	0%	0-120%	59	100%	59	100%
120-130%	0	0%	0	0%	0-130%	59	100%	59	100%
130-140%	0	0%	0	0%	0-140%	59	100%	59	100%
140-150%	0	0%	0	0%	0-150%	59	100%	59	100%
Total	59	100%	59	100%	Total	59	100%	59	100%

While 55 of the 59 plans, or 93%, have a market value of assets less than liabilities, Exhibit 6 demonstrates the extent of the shortfall. Nine plans have assets less than 60% of liabilities; 21 plans have assets less than 70% of liabilities; and 38 plans have assets less than 80% of liabilities. Using the actuarial value of assets to determine funding ratios, 54 of the 59 plans, or 92%, have assets below liabilities. Seven plans have assets less than 60% of liabilities; 16 plans have assets less than 70% of liabilities; and 31 plans have assets less than 80% of liabilities.

Similar to Exhibit 6, Exhibit 7 examines the fiscal condition of the 117 state retirement systems that reported actuarial values for 2007.



### Exhibit 7 Distribution of 117 State Pension Systems by FY07 Funding Ratio



Distribution	Bucket Count				Distribution	Cumulative Count			
	Market Value		Actuarial Value			Market Value		Actuarial Value	
	Count	% of Total	Count	% of Total		Count	% of Total	Count	% of Total
0-50%	2	2%	1	1%	0-50%	2	2%	1	1%
50-60%	4	3%	6	5%	0-60%	6	5%	7	6%
60-70%	5	4%	12	10%	0-70%	11	9%	19	16%
70-80%	21	18%	27	23%	0-80%	32	27%	46	39%
80-90%	19	16%	27	23%	0-90%	51	44%	73	62%
90-100%	26	22%	24	21%	0-100%	77	66%	97	83%
100-110%	20	17%	14	12%	0-110%	97	83%	111	95%
110-120%	12	10%	4	3%	0-120%	109	93%	115	98%
120-130%	3	3%	2	2%	0-130%	112	96%	117	100%
130-140%	3	3%	0	0%	0-140%	115	98%	117	100%
140-150%	2	2%	0	0%	0-150%	117	100%	117	100%
Total	117	100%	117	100%	Total	117	100%	117	100%

Using the market value of assets to determine funding ratios, 77 of the 117 plans, or 66%, have assets less than liabilities. Two plans have assets less than 50% of liabilities; 11 plans have assets less than 70% of liabilities; and 32 plans have assets less than 80% of liabilities. Using the actuarial value of assets to determine funding ratios, 97 of the 117 plans, or 83%, have assets less than liabilities. One plan has assets less than 50% of liabilities; 19 plans have assets less than 70% of liabilities; and 46 plans have assets less than 80% of liabilities.

#### Unfunded Actuarial Accrued Liability

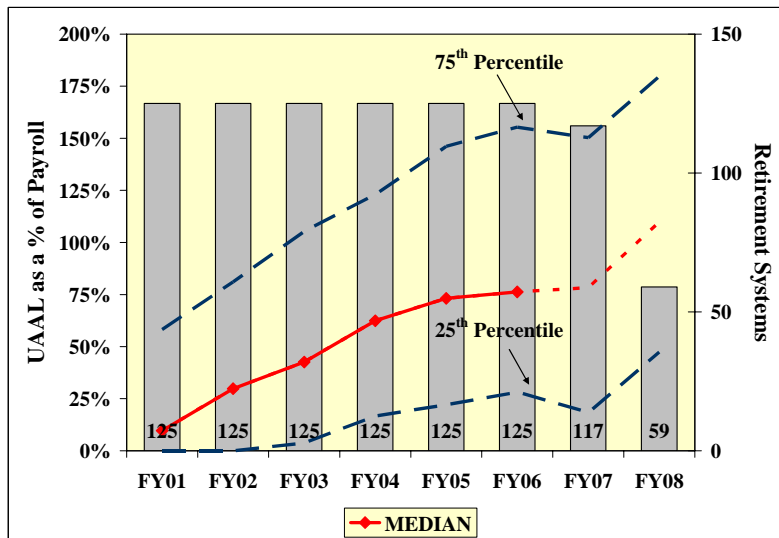
The financial health of retirement systems can also be measured by comparing the size of the unfunded actuarial accrued liability (UAAL) to relevant metrics. Since assets under



Governmental Accounting Standards Board (GASB) Statement No. 25<sup>2</sup> are based on actuarial values, this section calculates the UAAL using actuarial value of assets.

Exhibit 8 shows the median size of the UAAL relative to the covered payroll during the last eight years for the 125 retirement systems. Exhibit 8 also shows the 25<sup>th</sup> and 75<sup>th</sup> percentile for each year.

**Exhibit 8**  
**UAAL as a % of Covered Payroll by Fiscal Year for 125 Plans**



<sup>2</sup> GASB No. 25, Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans.



Exhibit 9 shows the median size of the UAAL relative to the actuarial value of assets during the last eight years for the 125 plans. Exhibit 9 also shows the 25<sup>th</sup> and 75<sup>th</sup> percentile for each year.

**Exhibit 9**  
**UAAL as a % of Actuarial Value of Assets by Fiscal Year for 125 Plans**

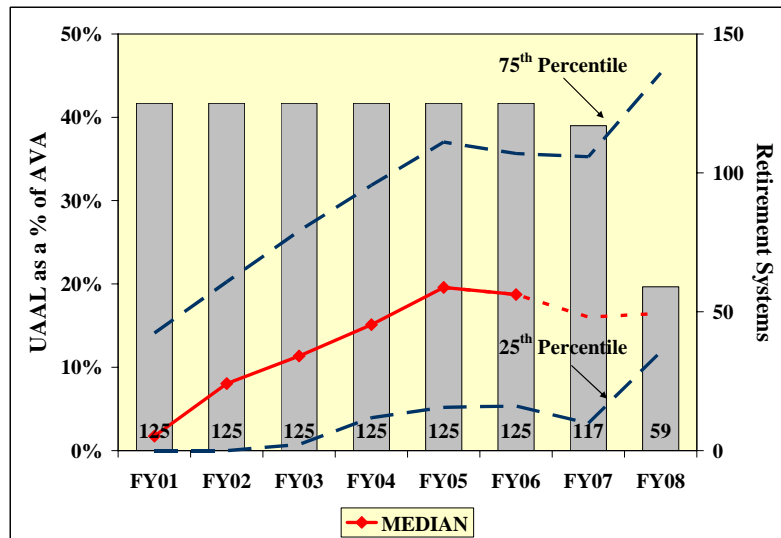
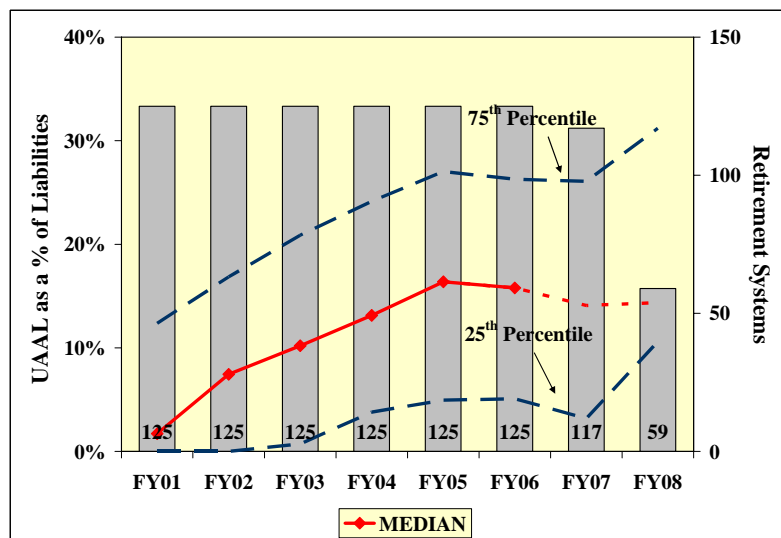


Exhibit 10 shows the median size of the UAAL relative to the actuarial accrued liability during the last eight years for all 125 retirement systems. Exhibit 10 also shows the 25<sup>th</sup> and 75<sup>th</sup> percentile for each year.

**Exhibit 10**  
**UAAL as a % of Accrued Liabilities by Fiscal Year for 125 Plans**





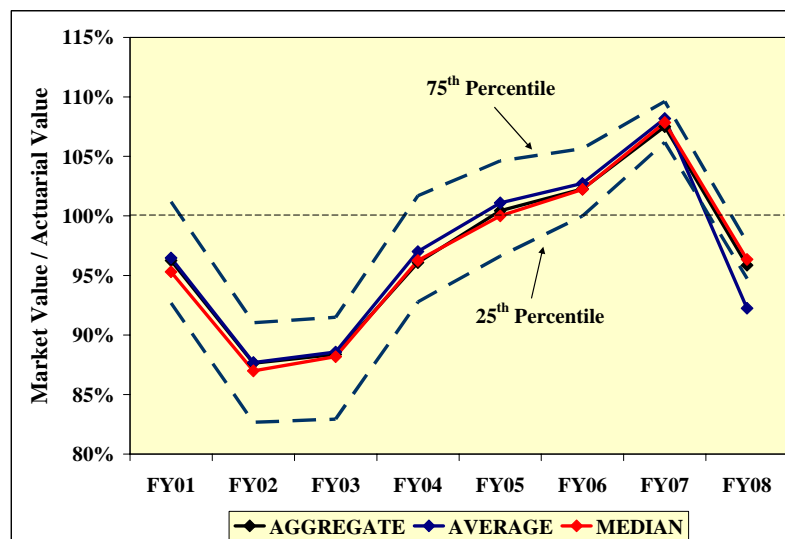
Last year, the UAAL had generally stabilized relative to all metrics. This year however, falling liability discount rates and poor market performance pushed the covered payroll ratio and the 25<sup>th</sup> and 75<sup>th</sup> percentiles of the actuarial value of assets and accrued liability higher. However, actuarial valuation often employs a smoothing method in order to reduce the impact of market fluctuations when determining pension fund contributions. If the UAAL were calculated using the market value of assets, the negative market return during 2008 would have led to a much larger increase in the UAAL relative to these metrics, indicating a more substantial deterioration in the financial health of most state retirement systems.

### Market Value of Assets versus Actuarial Value of Assets

As mentioned above, the actuarial value of assets is often calculated using a smoothing method in order to reduce the effects of market volatility when determining contribution rates. For example, a five-year smooth market value method would recognize 20% of the gain or loss<sup>3</sup> in the market value of assets over five years. Therefore, the large market returns from 2003 are still being recognized when calculating the actuarial value of assets.

Exhibit 11 displays the aggregate, average, and median ratio of the market value of assets (MVA) as a percentage of the actuarial value of assets (AVA) during the last eight years for the 59 state plans that reported actuarial values for 2008. Exhibit 11 also shows the 25<sup>th</sup> and 75<sup>th</sup> percentiles for each year. From FY03 to FY07, actuarial values declined relative to market values since they were still reflecting the poor market returns experienced during the bust of the internet stock bubble. In FY08, the actuarial value of assets now recognizes mostly positive market returns experienced between 2003 and 2007. Driving the overall ratio lower is the severe market sell-off in 2008 which is only partially recognized in today's actuarial values.

**Exhibit 11**  
**MVA as a Percentage of AVA by Fiscal Year for 59 Plans**



<sup>3</sup> A gain (loss) occurs when the actual rate of return is greater than (less than) the assumed rate of return.



## Asset Allocation

In this section we examine the investment strategies employed by the state retirement systems. Exhibit 12 provides a snapshot of the average asset allocation across all 125 state retirement systems.

**Exhibit 12**  
**Average Asset Allocation for State Pension Plans**

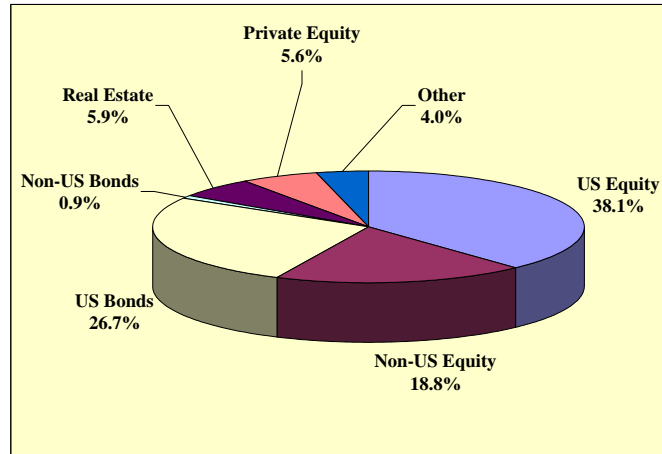


Exhibit 13 examines the change in average asset allocation during the last five years. During this period, the average allocations to Non-U.S. equities increased from 12.9% to 18.8% while allocations to U.S. Bonds decreased from 35.2% to 26.7%. Overall allocations to debt decreased while allocations to equity increased.

**Exhibit 13**  
**Change in Average Asset Allocation for State Pension Plans**

	<u>2003</u>	<u>2008</u>	<u>Change</u>
<b>Equity</b>			
US Equity	42.3 %	38.1 %	-4.2 %
Non-US Equity	12.9	18.8	5.9
Real Estate	4.0	5.9	1.9
Private Equity	4.2	5.6	1.4
Equity Subtotal	63.4	68.4	5.0
<b>Debt</b>			
US Bonds	35.2	26.7	-8.5
Non-US Bonds	1.4	0.9	-0.5
Other	0.0	4.0	4.0
Debt Subtotal	36.6	31.6	-5.0
Return *	7.3	7.5	0.2
Risk *	10.3	10.9	0.6

\* Return and Risk are based on Wilshire Consulting's current asset class assumptions (exhibit 14).



Portfolio expected return and risk are calculated by combining Wilshire’s assumptions for the major asset classes and each retirement system’s actual asset allocation. Exhibit 13 calculates the expected return and risk based on the two average asset allocations from 2003 and 2008 using Wilshire’s current long-term return and risk assumptions illustrated in Exhibit 14. As expected, the increased allocation to equities and away from debt has caused the average state pension plan to move towards a slightly higher expected return and risk allocation along the efficient frontier.

**Exhibit 14**  
**Wilshire’s Asset Class Assumptions**

	<b>Expected</b>	
	<b><u>Return</u></b>	<b><u>Risk</u></b>
U.S. Equity	8.50 %	16.0 %
Non-U.S. Equity	8.50	17.0
Private Equity	11.55	26.0
Real Estate	7.00	15.0
U.S. Bonds	4.00	5.0
Non-U.S Bonds	3.75	10.0

Exhibit 15 contains summary statistics on asset allocation for all state retirement systems. The median allocation<sup>4</sup> is 39.0% to U.S. equities and 19.6% to Non-U.S. equities. However, as the lowest and highest columns suggest, there is considerable variability in allocations among individual systems. Wilshire estimates that the median state pension fund has an expected return of 7.5%. This result is 0.5% less than the current median actuarial interest rate of 8.0%.

**Exhibit 15**  
**Summary Asset Allocation Statistics for State Systems**

	<b><u>Lowest (%)</u></b>	<b><u>Median (%)</u></b>	<b><u>Highest (%)</u></b>
U.S. Equity	0.0 %	39.0 %	72.0 %
Non-U.S. Equity	0.0	19.6	57.0
Private Equity	0.0	5.0	21.8
Real Estate	0.0	5.2	16.4
U.S. Bonds	13.0	25.3	100.0
Non-U.S Bonds	0.0	0.0	7.0
Hedge Funds	0.0	0.0	10.0
Other	0.0	1.7	25.4
<b>Expected Returns</b>	<b>4.0 %</b>	<b>7.5 %</b>	<b>8.5 %</b>

<sup>4</sup> The “Median” column in Exhibit 15 represents the median for each asset class and therefore does not sum to 100%. The median expected return is based on the median fund return, not on the median asset mix.



Exhibit 16 plots the expected return and risk for each of the 125 state retirement systems based upon their actual asset allocation. Systems that plot in the upper right employ more aggressive asset mixes while systems that plot in the lower left represent those with more conservative mixes. The dashed horizontal line, equal to 8.0%, represents the current median actuarial interest rate assumption employed by state pension plans.

Using Wilshire’s return forecasts, only 23 of the 125 state retirement systems, or 18.4%, are expected to earn long-term asset returns that equal or exceed their actuarial interest rate assumption. This is up slightly from the 21 state retirement systems that were expected to earn long-term returns that equaled or exceeded their actuarial interest rate assumption in last year’s report.

**Exhibit 16**  
**Projected Return & Risk by State Pension System**

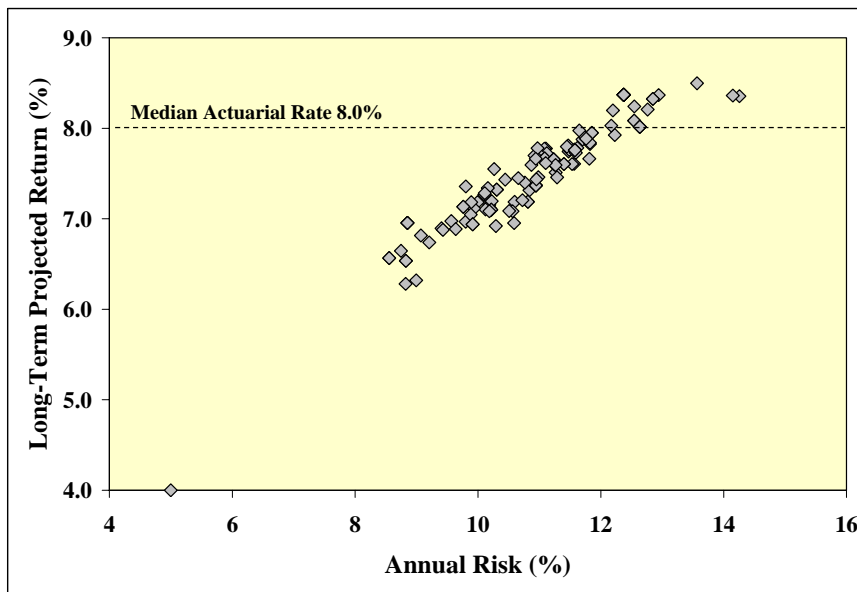
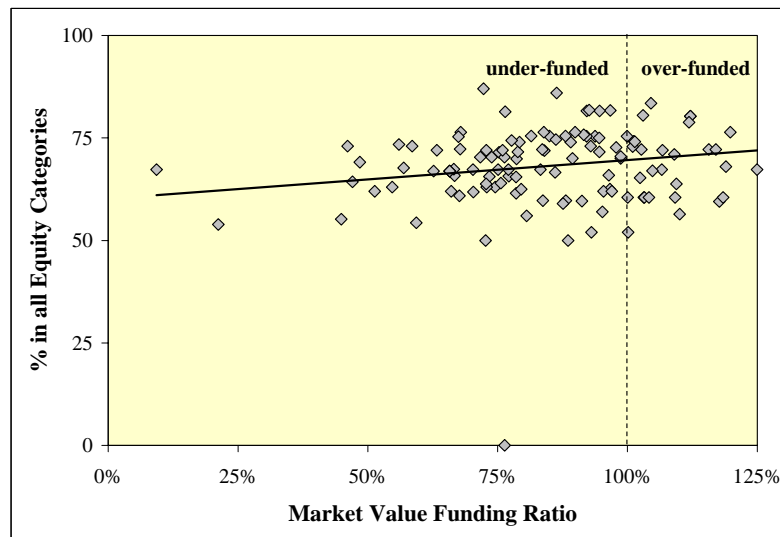




Exhibit 17 addresses the relationship between asset allocation and funding for all state systems. The allocation to equity asset classes, a proxy for investment aggressiveness, is plotted on the vertical scale. The market value funding ratio is on the horizontal scale.

**Exhibit 17**  
**Asset Allocation & Actuarial Funding**



The vertical line in Exhibit 17 separates overfunded plans from underfunded plans. Casual observation shows that overfunded plans have approximately the same asset allocation pattern as underfunded plans. While the horizontal trend-line would appear to indicate a positive relationship, statistically, there is no correlation between the equity allocation and a plan's funding ratio when taking into account the affect of outliers. In summary, there is no discernable relationship between asset allocation and funding. State retirement systems show a broad spectrum of asset allocations that appear to be unrelated to the size of their unfunded liabilities.<sup>5</sup>

<sup>5</sup> We would like to thank Brett Davis, Amy Hemphill, Robin Sedlak, Valerie Snodgrass, and Samantha Terry for their diligent hard work in the data collection for this report.



## Appendix A: State Retirement Systems<sup>6</sup>

<u>Retirement System</u>	<u>Retirement System</u>	<u>Report Date</u>
Alabama ERS	Alabama Employees' Retirement System	9/30/2007
Alabama TRS	Alabama Teachers' Retirement System	9/30/2007
Alaska PERS	Alaska Public Employees' Retirement System	6/30/2008
Alaska TRS	Alaska Teachers' Retirement System	6/30/2008
Arizona PSPRS	Arizona Public Safety Personnel Retirement System	6/30/2008
Arizona SRS	Arizona State Retirement System	6/30/2007
Arkansas Highway ERS	Arkansas Highway Employees Retirement System	6/30/2008
Arkansas PERS	Arkansas Public Employees Retirement System	6/30/2007
Arkansas TRS	Arkansas Teachers Retirement System	6/30/2007
California PERS	California Public Employees' Retirement System	6/30/2007
California Regents	The Regents of the University of California	6/30/2008
California STRS	California State Teachers' Retirement System	6/30/2007
Colorado Fire & Police	Colorado Fire & Police Pension Association	12/31/2007
Colorado PERA: Municipal	Colorado PERA: Municipal Division Trust Fund	12/31/2007
Colorado PERA: State & School	Colorado PERA: State & School Division Trust Fund	12/31/2007
Connecticut SERS	Connecticut State Employees' Retirement System	6/30/2008
Connecticut TRS	Connecticut State Teacher's Retirement System	6/30/2008
DC Police & Fire	District of Columbia Police Officers & Fire Fighters' Retirement System	9/30/2007
DC TRS	District of Columbia Teachers Retirement System	9/30/2007
Delaware PERS	Delaware Public Employees' Retirement System	6/30/2008
Florida RS	Florida Retirement Systems	6/30/2008
Georgia ERS	Georgia Employees Retirement System	6/30/2007
Georgia TRS	Georgia Teachers Retirement System	6/30/2007
Hawaii ERS	Hawaii Employees' Retirement System	6/30/2007
Idaho PERS	Idaho Public Employee Retirement System	6/30/2008
Illinois SERS	Illinois State Employees' Retirement System	6/30/2008
Illinois SURS	Illinois State Universities Retirement System	6/30/2008
Illinois TRS	Illinois State Teachers' Retirement System	6/30/2008
Indiana PERF: Employees	Indiana Public Employees' Retirement Fund: Employees	6/30/2007
Indiana PERF: Police & Fire	Indiana PERF: Police Officers' & Firefighters' Pension & Disability Fund	6/30/2007
Indiana TRF	Indiana State Teachers Retirement Fund	6/30/2007
Iowa Fire & Police	Iowa Municipal Fire & Police Retirement System	6/30/2008
Iowa PERS	Iowa Public Employees Retirement System	6/30/2008
Kansas PERS	Kansas Public Employees Retirement System	6/30/2007
Kentucky RS: County Employees	Kentucky Employees Retirement System: County Employees	6/30/2008
Kentucky RS: Employees	Kentucky Employees Retirement System: Employees	6/30/2008
Kentucky TRS	Kentucky Teachers' Retirement System	6/30/2008
Louisiana School ERS	Louisiana School Employees' Retirement System	6/30/2008
Louisiana SERS	Louisiana State Employees' Retirement Systems	6/30/2008
Louisiana State Police	Louisiana State Police Pension & Retirement System	6/30/2008
Louisiana TRS	Louisiana Teachers Retirement System	6/30/2008
Maine SRS	Maine State Retirement System	6/30/2008
Maryland SRPS: Employees	Maryland State Retirement & Pension System: Employees	6/30/2008
Maryland SRPS: State Police	Maryland State Retirement & Pension System: State Police	6/30/2008
Maryland SRPS: Teachers	Maryland State Retirement & Pension System: Teachers	6/30/2008
Massachusetts SRB	Massachusetts Public Employee Retirement Administration Commission: SRB	1/1/2008
Massachusetts Teachers	Massachusetts Public Employee Retirement Administration Commission: Teachers	1/1/2008
Michigan Municipal	Michigan Municipal Employees Retirement System	12/31/2007
Michigan Public School ERS	Michigan Public School Employees Retirement System	9/30/2007
Michigan SERS	Michigan State Employees Retirement System	9/30/2007
Michigan State Police	Michigan State Police Retirement System	9/30/2007
Minnesota PERA: Employees	Minnesota Public Employees Retirement Association: Employees	6/30/2008
Minnesota PERA: Police & Fire	Minnesota Public Employees Retirement Association: Police & Fire	6/30/2008
Minnesota SRS: Employees	Minnesota State Retirement System: Employees	6/30/2008
Minnesota SRS: State Patrol	Minnesota State Retirement System: State Patrol	6/30/2008
Minnesota TRA	Minnesota Teachers Retirement Association	6/30/2008
Mississippi PERS	Mississippi Public Employees' Retirement System	6/30/2008
Missouri ERS	Missouri State Employee Retirement System	6/30/2008
Missouri Highway ERS	Missouri Highway & Transportation Employees and Highway Patrol Retirement System	6/30/2008
Missouri PEERS	Missouri Public Education Employee Retirement System	6/30/2008
Missouri PSRS	Missouri Public School Retirement System	6/30/2008
Montana PERB	Montana Public Employees Retirement Board	6/30/2008
Montana TRS	Montana Teachers' Retirement System	6/30/2008

<sup>6</sup> All state plan information is obtained from public information sources.



## Appendix A: (cont.)

<u>Retirement System</u>		<u>Report Date</u>
Nebraska RS	Nebraska Retirement System	6/30/2008
Nevada PERS	Nevada Public Employees' Retirement System	6/30/2008
New Hampshire RS: Employees	New Hampshire Employees Retirement System	6/30/2008
New Hampshire RS: Police & Fire	New Hampshire Firefighters & Police Officers Retirement System	6/30/2008
New Hampshire RS: Teachers	New Hampshire Teachers Retirement System	6/30/2008
New Jersey PERS	New Jersey Public Employees Retirement System	6/30/2007
New Jersey Police & Fire	New Jersey Police & Firemen's Retirement System	6/30/2007
New Jersey State Police	New Jersey State Police Retirement System	6/30/2007
New Jersey TPAF	New Jersey Teachers' Pension & Annuity Fund	6/30/2007
New Mexico ERB	New Mexico Educational Retirement System	6/30/2008
New Mexico PERA	New Mexico Public Employees Retirement Association	6/30/2007
New York STRS	New York State Teachers Retirement System	6/30/2007
New York: ERS	New York State & Local Employees' Retirement System	3/31/2007
New York: Police & Fire	New York Police & Fire Retirement System	3/31/2007
North Carolina Local ERS	North Carolina Local Governmental Employees' Retirement System	12/31/2007
North Carolina TSERS	North Carolina Teachers' & State Employees' Retirement System	12/31/2007
North Dakota PERS	North Dakota Public Employees Retirement System	6/30/2008
North Dakota TFFR	North Dakota Teachers' Fund for Retirement	6/30/2008
Ohio PERS	Ohio Public Employees Retirement System	12/31/2006
Ohio Police & Fire	Ohio Police & Fire Pension Fund	12/31/2007
Ohio School Employees RS	Ohio School Employees Retirement System	6/30/2008
Ohio STRS	Ohio State Teachers Retirement System	6/30/2008
Oklahoma Firefighters	Oklahoma Firefighters Pension & Retirement System	6/30/2008
Oklahoma PERS	Oklahoma Public Employees Retirement System	6/30/2008
Oklahoma Police	Oklahoma Police Pension & Retirement System	6/30/2008
Oklahoma TRS	Oklahoma Teachers Retirement System	6/30/2008
Oregon PERS	Oregon Public Employees Retirement System	6/30/2007
Pennsylvania PSERS	Pennsylvania Public School Employees' Retirement System	6/30/2007
Pennsylvania SERS	Pennsylvania State Employees' Retirement System	12/31/2007
Rhode Island ERS: Employees	Rhode Island Employees Retirement System: Employees	6/30/2006
Rhode Island ERS: Teachers	Rhode Island Employees Retirement System: Teachers	6/30/2006
Rhode Island MERS	Rhode Island Municipal Employees Retirement System	6/30/2006
South Carolina Police	South Carolina Police Officers Retirement System	6/30/2007
South Carolina RS	South Carolina Retirement System	6/30/2007
South Dakota RS	South Dakota Retirement System	6/30/2008
Tennessee PSPP	Tennessee Consolidated Retirement System Political Subdivision Pension Plan	6/30/2008
Tennessee SETHEEPP	Tennessee Consolidated Retirement System State Employees, Teachers, Higher Education Employees Pensi	6/30/2008
Texas CDRS	Texas County & District Retirement System	12/31/2007
Texas ERS	Texas Employees Retirement System	8/31/2008
Texas LECOSRF	Texas Law Enforcement & Custodial Officers Supplemental Retirement Fund	8/31/2008
Texas Municipal	Texas Municipal Retirement System	12/31/2007
Texas TRS	Texas Teachers Retirement System	8/31/2008
Utah Contributory RS	Utah Contributory Retirement System	12/31/2007
Utah Firefighters RS	Utah Firefighters Retirement System	12/31/2007
Utah Noncontributory RS	Utah Noncontributory Retirement System	12/31/2007
Utah Public Safety RS	Utah Public Safety Retirement System	12/31/2007
Vermont MERS	Vermont Municipal Employees' Retirement System	6/30/2008
Vermont SERS	Vermont State Employees' Retirement System	6/30/2008
Vermont TRS	Vermont State Teacher's Retirement System	6/30/2008
Virginia RS	Virginia Retirement System	6/30/2007
Washington LEOFF 1	Washington Law Enforcement Officers & Fire Fighters' Retirement System 1	6/30/2007
Washington LEOFF 2	Washington Law Enforcement Officers & Fire Fighters' Retirement System 2	6/30/2007
Washington PERS 1	Washington Public Employees' Retirement System Plan 1	6/30/2007
Washington PERS 2/3	Washington Public Employees' Retirement System Plan 2	6/30/2007
Washington SERS 2 & 3	Washington School Employees' Retirement System Plan 2 & 3	6/30/2007
Washington TRS 1	Washington Teachers' Retirement System Plan 1	6/30/2007
Washington TRS 2 & 3	Washington Teachers' Retirement System Plan 2 & 3	6/30/2007
Washington WSPRS 1 & 2	Washington State Patrol Retirement System	6/30/2007
West Virginia PERS	West Virginia Public Employees Retirement System	6/30/2007
West Virginia TRS	West Virginia Teachers Retirement System	6/30/2007
Wisconsin RS	Wisconsin Retirement System	12/31/2006
Wyoming RS	Wyoming Retirement System	12/31/2007



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